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A 'HUMAN NEEDS' DIET: AUTUMN 1953

I. DEFINITION OF 'HUMAN NEEDS'

Under conditions of comprehensive food rationing it tends to become an almost axiomatic assumption that the rations allowed to a person also represent the minimum essential for his ' human needs '—though that, of course, was far from being true even with rationing at its most stringent. Indeed, in no complex society could rationing be carried through for any length of time on so delicate a basis. The necessity for rationing arises when a country is facing a crisis that calls for the most careful marshalling of all her resources of materials and men. Under such conditions rationing must certainly be planned so as to maintain people's health and efficiency, but it must be planned in terms that keep its administration within manageable proportions and, at the same time, make the system acceptable to the community as a whole ; in short, rationing must be simple, and it must be felt to be ' just.' Hence people do not in fact receive ' according to their needs ' but rather—as far as the broad grouping for the purpose of rationing permits—*in proportion* to their needs, which is a very different matter. Yet the one is easily confused with the other, and quite understandably so. Food rationing over a long period is liable to result in dull meals, not only because of the identity of all the individual rations at any given time but also because variations in individual catering due to individual choice, are replaced by variations imposed upon that catering through changes in the official rations, which damps individual initiative. Thus, under strict rationing, most people found their meals satisfying, but nothing more; this tended to foster the impression that the foods that went into these meals were only just sufficient to cover the physiological needs for essential nutrients. In fact, it would be utterly impossible to make any substantial group of inhabitants of this country accept a diet that, in this strict sense, provided for their ' needs ' only; for the only constituents required for such a diet would be wholemeal of one kind or another, milk and fat, and common vegetables. For all practical purposes ' human needs ' have to be defined in wider terms, allowing for the satisfaction not only of physiological but also psychological needs. The only difficulty likely to baffle the inquirer into what these twofold needs are, lies in the fact that although physiological needs are to some extent measurable and can thus be determined (though for practical purposes much less precisely than some people have come to believe), psychological needs cannot be pinned down in quantitative terms and hence remain elusive. ' To everyone a little of everything that is going ' may represent a working formula in the heyday of rationing. It will at least help to keep down dissatisfaction; but as we have learnt from experience, it does not—and indeed, by its very nature, cannot—yield much personal satisfaction. Besides, under normal conditions the system is wasteful in both materials and labour.

Are we then debarred from any realistic interpretation of ' human needs ' now that the prop of rationing that sustained the concept has virtually been withdrawn ? Certainly not. The meaning of ' human needs ' was well understood before the war when markets were free. It is true that psychological needs are not measurable; nevertheless, since we know that they are closely linked up with the broadly fixed food habits of the community, we can to some extent evaluate them. This was done by Mr. Rowntree before the war, and the dietary compiled by him in 1936, has, in fact, remained remarkably sound. Yet the science of nutrition has progressed since then and dietary habits have somewhat changed; with the approval of the nutritionists we now drink more milk and eat less meat than we did in 1936, and there have been other less spectacular modifications in our feeding habits. Obviously, food rationing has left some impression upon these habits as well as upon the popular concept of ' human needs ', in spite of its shifting and occasionally even drastically changed patterns. However, there is nothing sacrosanct about the most recent rations—or about the rations allotted at any other time—and there is much reason to doubt that the rations were ever in fact more than an ephemeral interpretation of ' human needs ', in any sense. At present, customers as well as markets are living through an experimental stage. What was in great demand under rationing either because it was a substitute for something else that had become unobtainable, or simply because it was considered scarce, may come to be neglected; on the other hand, an onrush, impressive though perhaps only transitory, may develop for a food immediately after its derationing. In a retail market where, in the last resort, total demand is determined by total spending power, the combined forces of progressive derationing, the lifting of Government controls, and the increasing variety of supplies are bound to exert an unsettling influence. Buyers are only gradually relearning to make a free choice, and sellers to discover preferences and compete for custom. Thus, as food habits and food prices are groping for adjustment, they are difficult to pin down.

If one looks for a reasonably realistic definition of the meaning of ' human needs ' one cannot close one's eyes to these forces that, at present, are exerting their pressure upon the pattern of individual demand. No housewife, poor or rich, goes out to buy for her family calories, proteins, and a host of other nutrients. What she wants are foods within the reach of her purse that will please her family. The less she has to spend, the more important will be her ability to chose wisely; but under rationing that ability has largely remained latent. While it is reawakening, errors of judgment will be inevitable and may be costly. In the last six months the upward trend in retail prices has been arrested[1]; yet the widening of choice of purchases open to the housewife and the consequent fluctuations in the pattern of her spending may easily cause her to believe that, on the whole, food is still continuing to become dearer.

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[1] Actually, the Ministry of Labour index of retail prices shows, from April to October 1953, a decline in the price of food of about 1.7 per cent. This corresponds very closely with the change in the cost of a 'human needs' diet found by us for the period April—October/November, 1953, *viz.*, 1.8 per cent (from 65s. 3d. to 64s. 0¾d).

2. The Cost of a 'Human Needs' Diet in 1953

If we compare the weekly cost of a 'human needs' diet in April of this year, as outlined in an earlier number of the *Bulletin*,[1] with the cost of this same diet in October – November, we find a slight decline in total cost, from 65s. 3d. to 64s. 0¾d., the net change being due to the seasonal fall in the price of vegetables. But since we are agreed that a housewife is unlikely to have purchased during the two periods exactly the same items in the same quantities, and, further, that modifications in the pattern of purchases of even a fairly efficient housewife may not always have been for the better, let us rather turn the problem round and ask: what might a housewife, the mother of a family of five, have bought in the autumn of 1953 with the same amount at her disposal as in the spring, *viz.*, 65s. 3d.—assuming that her family was to be reasonably well fed but, also, that she was still grappling with that exacting task of discovering the possibilities of the market and hence bearing the cost of a learner's errors.

As a whole, our dietary so conceived (Table I) is not greatly dissimilar from that for April. It assumes the consumption of only such foods as were generally available in October–November and were widely bought. In its marginal adjustment, however, it is frankly pragmatic: the amount of 2s. 3d. for 'unwise' spending (the 'extras'—item no. 34 in Table I) was adopted because an error of a little over 3 per cent seemed a very modest allowance to make and because, in taking that particular figure, the total cost of the autumn diet was equalized to that of the spring diet. No nutrients are assumed to be derived from the outlay of this marginal sum. With exactly the same purchases as in April—which would not have yielded a higher nutritional intake than the autumn diet—the loophole for uneconomic spending would have been only 1s. 2¼d. But the derationing of sugar, the ample supply of cheap herrings, the relative costliness of bacon rashers, and other slight shifts in conditions of supply and in prices, certainly could be reflected in the purchase pattern of a thoughtful housewife, to the advantage of her family and her purse. If she avoided all errors she could have obtained this autumn diet for 63s.

Care was taken to make sure that this figure of total cost was generally valid in all the places visited by us—Oxford, London, and a considerable number of smaller towns in the southern Midlands. This, of course, does not mean that the purchases could be made indiscriminately from any shop that sold a particular item. However, there are the markets and there are many good and inexpensive shops well known to a housewife interested in discovering them, where all the foods included in the dietary could be pur-

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[1] Vol. 15, Nos. 6 and 7. The dietary is always computed for a family consisting of husband, wife, and three children of school age.

TABLE I: *Weekly 'Human Needs' Diet for 5 Persons—Autumn 1953*

	Quantity	*Average Price per Unit*[1]	*Changes since Spring*	
			Quantity	*Outlay*
		s. d.		*s. d.*
(*A*) *Meat and Fish*:				
1 Meat, fresh	4 ℔	2 2	...	— *1*
2 Bacon	12 oz.	3 2	— 13 oz.	—*2 7*
3 Sausages (beef)	10 oz.	1 10½	— 6 oz.	— *8½*
4 Black Pudding	8 oz.	1 6	+ 8 oz.	+ *9*
5 Herrings	2 ℔ 8 oz.	9	+ 8 oz.	— *0½*
6 Kippers and Bloaters ...	1 ℔ 8 oz.	1 0	+ 8 oz.	+ *3*
Outlay on Group (*A*)		*16 4*		*—2 5*
(*B*) *Dairy Produce*:				
7 Eggs	5 eggs	4½	...	...
8 Cheese	8 oz.	2 2	+ ½ oz.	+ *0¾*
9 Milk, ordinary	18 pt.	6½	...	...
10 *do.*, School	5 pt.	free	...	...
Outlay on Group (*B*)		*12 8½*		+ *0¾*
(*C*) *Fats*:				
11 Margarine	2 ℔ 3 oz.	1 6	...	+ *4½*
12 Cooking Fat	10 oz.	1 8	...	+ *1¼*
13 Dripping	8 oz.	1 4	+ 8 oz.	+ *8*
Outlay on Group (*C*)		*5 0*		*+1 1¾*
(*D*) *All Cereal Foods*:				
14 Bread	20 ℔	4¼	...	...
15 Flour	3 ℔	6	...	+ *5½*
16 Rolled Oats	2 ℔ 8 oz.	9	...	...
17 Macaroni	8 oz.	1 0	— 8 oz.	— *4½*
18 Semolina	1 ℔	9	— 8 oz.	— *3*
19 Rice	4 oz.	1 3	...	— *0¼*
Outlay on Group (*D*)		*12 1*		— *5¼*
(*E*) *Dried Legumes*:				
20 Peas	1 ℔	10½	— 4 oz.	— *4½*
21 Beans	1 ℔	1 1	+1℔	*+1 1*
Outlay on Group (*E*)		*1 11½*		+ *8½*
(*F*) *Potatoes and Fresh Vegetables*:				
22 Potatoes	21 ℔	1¾	...	— *4½*
23 Cabbage	6 ℔ 8 oz.	4	+1 ℔ 8 oz.	— *4*
24 Carrots	2 ℔ 8 oz.	3½	—1 ℔	— *7*
25 Swedes and Turnips ...	4 ℔	3	+ 8 oz.	+ *1½*
26 Onions	1 ℔	4½	+ 8 oz.	+ *0½*
27 Beetroot	...	...	—1 ℔ 8 oz.	— *7½*
Outlay on Group (*F*)		*7 4¾*		*—1 9*
(*G*) *Other Foods*:				
28 Sugar	3 ℔ 8 oz.	7½	+ 6 oz.	+ *4¼*
29 Jam or Syrup	4 oz.	1 0	— 6 oz.	— *4*
30 Cocoa	4 oz.	11	...	...
31 Tea	8 oz.	4 0	...	+ 2
32 Apples	2 ℔	4	+1 ℔ 6 oz.	+ *3*
33 Condiments	...	1 6	...	...
34 Extras	...	2 3	...	*+2 3*
Outlay on Group (*G*)		*9 9¼*		*+2 8¼*
Total Outlay		**65 3**		...

chased freely at a total cost of not more than 63s. Lower prices than given in Table I were found to obtain on occasion, and some minimum prices encountered are set out in Table II. However, only in a very exceptional case could a housewife have profited by all these minimum prices, and it is indeed unimaginable that any real person would be capable of gaining everything on the swings while losing nothing on the roundabouts. Notwithstanding this, the fact that a little more could have been economized on the foods as listed in Table I deserves attention, because it indicates a further possibility of compensating small errors of judgement within the framework of the fixed dietary.

TABLE II

Minimum Prices of Certain Foods, Autumn 1953

	Unit	*Price per Unit*			
		Minimum		*Table I*	
		s.	d.	s.	d.
Meat, stewing	lb	1	4	2	2
do., pieces, boneless	lb	2	0		
Bacon	lb	1	3[1]	3	2[2]
Herrings	lb		8		9
Kippers	lb		11	1	0
Bloaters	lb		10	1	0
Eggs	egg		3¾		4½
Dripping	lb	1	2	1	4
Macaroni	lb		11½	1	0
Potatoes	½ stone	1	0	1	0½
Cabbage	lb		3		4
Carrots	lb		1¾		3½
Swedes	lb		2		3
Turnips	lb		2½		3
Apples	lb		3		4
Tea	lb	3	8	4	0

[1] Fat pieces. [2] Rashers.

3. NUTRITION FROM PRE-WAR AND POST-WAR DIETS

The autumn dietary—assuming no yield of nutrients from the 'extras'—provides broadly the same amounts of essential nutrients as the April dietary, with some margins above requirements (Table III). The variations

TABLE III

Nutritional Intake from Diet in Table I

	M.A.E.'s[1] of Family of 5 Persons	*Requirements per M.A.E. per Day*	*Intake from 'Human Needs' Diet per M.A.E. per Day*	
			Spring 1953	*Autumn 1953*
Calories	3.73	3,000	3,100	3,100
Protein, gm.	4.43	70	83	84
Calcium, gm.	7.13	0.8	0.7	0.7
Iron, mgm.	5.40	10	13	13
Vitamin A, Intern. Units ...	5.00	3,000	3,700	3,400
Vitamin B_1, mgm.	4.68	0.9	1.6	1.6
Vitamin C, mgm.	5.00	30	33	60
Animal Protein as % of Total Protein Requirements	...	...	*47%*	*48%*

[1] Male Adult Equivalents.

in the figures for vitamins A and C in the two diets are, though in different senses, seasonal. Vegetables contain more of vitamin C in the autumn, when still fresh from the soil, than they do in spring after winter storage. Vitamin A, however, is stable and its content in foods little subject to seasonal changes. But there is a smaller allowance of carrots in the autumn dietary than in that for spring, and the vitamin A in the ' human needs ' diet derives largely from these vegetables, in the form of the pro-vitamin carotene. The reduction in quantity was made simply because there happened to be a good supply of excellent turnips in the markets, which, evidently, found favour with the housewives, and which were included in our dietary for the sake of greater realism, partly in lieu of carrots. This small change is nutritionally immaterial, since it leaves the total intake of vitamin A from the diet still well above requirements.

How does our autumn dietary compare with the ' human needs ' dietary of 1936 ? Owing to the lower allowance of milk in the pre-war dietary—14 pints as against 23 pints—and to the fact that before the war flour and bread were not re-enforced with calcium, the calcium content of the 1936 diet would have been in the neighbourhood of only 0.5 gramme per Male Adult Equivalent per day, while the 1953 diets provided 0.8 gramme. The content of animal protein in the two diets is about the same, but Mr. Rowntree's diet contains less vegetable protein and possibly also produced slightly fewer calories (unless its meat and bacon were very fat). Sufficient expenditure was allowed by Mr. Rowntree for the purchase of an adequate amount of vegetables and fruit, even though he specified only onions, swedes, and apples. However, bearing in mind that the nutrients in specific foods are not standardized like drugs in doctors' prescriptions and that, at any time, there will be wide variations in the nutritional content of seemingly identical foods, and allowing for differences in feeding habits, we may assume that, in 1936, Mr. Rowntree's dietary came as near to an interpretation of actual 'human needs' as any of our war-time and post-war dietaries, and, in that sense, is equivalent to them.

In Table IV, the 1936 dietary and our autumn dietary of Table I are briefly summarized so as to facilitate a comparison of their respective patterns of cost and consumption. The shift in particular in the expenditure pattern from meat to milk is striking. The 1936 dietary also provided a much larger intake of sugar than our dietary, though this fact is here not evident, since the figures for sugar, jam, and syrup tell only part of the story. The bulk of the sugar in Mr. Rowntree's diet would come from the condensed milk, which has an addition of about 3½ oz. of sugar, per pint equivalent to fresh skimmed milk. Thus 14 pints of reconstituted milk would also yield over 3 lb. of sugar.

4. ' HUMAN NEEDS ' IN THEORY AND IN PRACTICE

It might be argued that, for practical purposes, an allowance for human imperfection in selecting the right kind of foods at the right prices to the tune of only 3 per cent, is under the present conditions too small, and that a

TABLE IV

Weekly 'Human Needs' Diet for 5 Persons in 1936 and 1953

	Rowntree Diet in 1936			*Diet in Autumn 1953 (Table I)*	
	Quantity	*Outlay*		*Quantity*	*Outlay (65s. 3d.)*
		s. d.	%		%
Meat and Bacon ...	8 ℔ 8 oz.	*6 0*	27.3	4 ℔ 12 oz.	17.0
Sausages	1 ℔	*6*	2.3	1 ℔ 2 oz.	2.9
Fish	2 ℔ 8 oz.	*9¼*	3.5	4 ℔	5.2
Eggs	1 egg	*1*	0.4	5 eggs	2.8
Cheese	1 ℔	*9*	3.4	8 oz.	1.7
Milk bought ...	14 pt.[1]	*2 0*	9.1	18 pt.	14.9
Fats	2 ℔ 12 oz.	*1 2½*	5.3	3 ℔ 5 oz.	7.7
All Cereal Foods[2]	20 ℔ 12 oz.	*4 10¾*[3]	22.3	21 ℔ 4 oz.	18.5
Dried Legumes ...	1 ℔ 4 oz.	*4½*	1.7	2 ℔	3.0
Potatoes ...	14 ℔	*10½*	4.0	21 ℔	4.8
Fresh Vegetables	14 ℔[4]	*1 0½*[4]	4.7	14 ℔	6.5
Sugar	2 ℔	*4½*	1.7	3 ℔ 8 oz.	3.4
Jam and Syrup	2 ℔	*9*	3.4	4 oz.	0.4
Tea	8 oz.	*9*	3.4	8 oz.	3.1
Other Foods ...	...	*1 7½*[5]	7.5	...	8.1
Total Outlay ...		*22 0*[3],[5]	100.0		100.0

[1] Skimmed and sweetened condensed milk.

[2] Bread in terms of flour, in proportion of 10 : 7.

[3] Outlay in original dietary increased by 1s. 7¼d. through substitution of cost of white bread for cost of wholemeal flour.

[4] Approximaltely.

[5] *Minus* 1½d. in original dietary (assumed cost of yeast).

housewife compelled to cater on a budget which only permits of the purchase price of a 'human needs' diet, would thus inevitably find herself short of money and hence incapable of actually buying the full diet. This is a weighty objection which deserves to be considered.

There is, of course, one aspect of these war-time and post-war dietaries with regard to which the problem of such errors of judgement is negligible, or almost so. For one basic purpose of our computing at regular intervals the cost of a 'human needs' diet is to obtain a picture of changes in cost of approximately equivalent diets (allowing for changes in the general market conditions) in the course of the years, starting with the cost figure found by Mr. Rowntree in 1936. We think, indeed, that the circumstances in the autumn of 1953 called for some special adjustment in the figures of cost, and hence have allowed a small unspecified outlay—the 3 per cent error—as part of the normal cost. No doubt, far more serious 'errors of judgement' may be committed—and are and have been committed at all times—by individual housewives. But that is a completely different point. If we consider the problem from this angle, we are, indeed, faced with the question: is one justified in assuming that, given an actual expenditure on food corresponding to the cost of a 'human needs' diet, an ordinary housewife could feed her family properly ?

Only a very exceptional housewife would possess a detailed knowledge of the nutritional values of foods, and if there were good reason to think that such knowledge was indispensable for the selection of the right kinds of foods within the framework of the ' human needs ' dietary, its practical value would certainly be small. But this, surely, is not so. The foods composing these dietaries are commonly used, and the quantities shown would provide meals conforming to custom. Foods that appear to have little appeal to housewives in general, are avoided in the dietary, even though they may be good value for money. In fact, a housewife who cooks three meals a day for a family of five with healthy appetites, and who cannot spend on food more than the ' human needs ' outlay, will inevitably require many of the basic ingredients listed in the dietary, and if she buys less of the one she will want more of a substitute.

5. ' Human Needs ' Simplified Further

Still, this does not dispose of the argument that her errors of judgement may absorb more than the 3 per cent assumed by us. What, in that case, happens to nutrition ? It may be that the family will be malnourished—though this, of course, is not precluded when a housewife can spend on food much more than the ' human needs' outlay; proper nutrition is largely independent of expenditure on food. Well, then: must a family inevitably be malnourished if the effective outlay on food falls below the cost of a ' human needs ' diet—assuming that their tastes are not spartan enough for the stern subsistence diet referred to earlier in this paper—or could the dietary be simplified further without changing the underlying pattern of food habits and thus becoming wholly unrealistic ? An answer to this question is attempted in Table V, which pictures a weekly diet for five persons costing 56s. It certainly is a very modest diet, but there is nothing unrealistic about it. Essentially, it provides the same type of meals as the diet outlined in Table I. The main changes from that diet are the replacement of part of the fresh milk by skimmed condensed milk, a reduction in the quantity of meat foods, and an increase in the quantities of milk, legumes, and fat. The approximate figures of individual consumption in Table V are not intended to indicate the ideal distribution of the foods but rather to show the shares that might fall to each member as part of the family meals.

This ' simple ' diet—with a fair allowance of milk, eggs, fats, and vegetables—could yield meals reasonably varied and appetizing, as well as nutritious. The part-replacement of fresh full cream milk by skimmed condensed milk represents a loss of milk fat and a gain in sugar. Allowing on the one hand for the sugar added to the condensed milk and, on the other, for the fat withdrawn, the purchase price of a pint of condensed milk approximately equivalent to a pint of fresh full cream milk (*i.e.*, minus the sugar but with the milk fat replaced by dripping) was 5d. a pint, as compared with 6½d. for fresh milk. From a culinary view point, dripping is generally more useful in a diet containing few meat foods, than the cream on the milk, since tasty foods can be cooked with the former but hardly with the latter. The fact that dripping and fat bacon could be bought freely in the autumn of 1953 was a

TABLE V

Simple Weekly Diet for a Family of 5 Persons

	Total Diet for 5 Persons			*Approximate Distribution of Diet*			
	Quantity	*Average Price per Unit*[1]	*Cost*	*Husband* *Quantity*	*Wife* *Quantity*	*2 Children 7–12 years Quantity*	*1 Child 5 years Quantity*
		s. d.	*s. d.*				
(1) Meat	2 lb 8 oz.	2 2	*5 5*	12 oz.	7 oz.	15 oz.	6 oz.
(2) Bacon (fat pieces) ...	1 lb 8 oz.	1 6	*2 3*	9 oz.	6 oz.	7 oz.	2 oz.
(3) Herrings, Bloaters, etc. ...	3 lb 8 oz.	10	*2 11½*	1 lb 2 oz.	11 oz.	1 lb 6 oz.	5 oz.
(4) Eggs	5 eggs	4½	*1 10½*	1 egg	1 egg	2 eggs	1 egg
(5) Cheese	8 oz.	2 2	*1 1*	2 oz.	2 oz.	3 oz.	1 oz.
(6) Milk, fresh, full cream ...	12 pints[2]	6½	*3 9½*[3]	—	—	6 ⅚ pints	5⅙ pint
(7) *do.*, skimmed condensed ...	6.4 tins[4]	11½	*6 1½*	2 pints	2¾ pints	5⅙ pints	2 1/12 pint
(8) Fats	3 lb 11 oz.[5]	1 5¾	*5 6*	1 lb 5 oz.	15 oz.	1 lb 1 oz.	6 oz.
(9) Bread	20 lb	4¼	*7 1¾*	5 lb	4 lb 8 oz.	8 lb	2 lb 8 oz.
(10) Flour	3 lb 8 oz.	6	*1 9*	1 lb 3 oz.	11 oz.	1 lb 2 oz.	8 oz.
(11) Rolled Oats	3 lb	9	*2 3*	12 oz.	12 oz.	1 lb 4 oz.	4 oz.
(12) Macaroni, etc.	8 oz.	1 0	*6*	2 oz.	2 oz.	3 oz.	1 oz.
(13) Sugar	1 lb 4 oz.	7½	*9½*	3 oz.[6]	5 oz.[7]	9 oz.[8]	3 oz.[9]
(14) Jam, Syrup, etc. ...	8 oz.	1 0	*6*	1 oz.	1 oz.	4 oz.	2 oz.
(15) Dried Legumes	3 lb	1 0	*3 0*	14 oz.	12 oz.	1 lb 2 oz.	4 oz.
(16) Potatoes	21 lb	1¾	*3 1½*	6 lb	5 lb	8 lb	2 lb
(17) Fresh Vegetables	14 lb	3¾	*4 3¼*	3 lb	3 lb	6 lb	2 lb
(18) Tea and Condiments ...	...	...	*3 8*	...	...	...	...
Total Cost			*56 0*	*14/0d.*[10]	*11/9d.*[11]	*21/7d.*[12]	*8/8d.*[13]

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[1] The price unit is: eggs, one egg; fresh milk, pint; skimmed condensed milk, tin; all other items, lb.

[2] Including 5 pints of free school milk. [3] Cost of 7 pints only.

[4] Equivalent to 12 pints of sweetened skimmed milk. [5] 2 lb 3 oz. margarine, 10 oz. cooking fat, 14 oz. dripping.

[6] [7] [8] [9] *Plus* sugar from skimmed condensed milk, approximately: [6] 7 oz.; [7] 9.6 oz.; [8] 18 oz.; [9] 7.3 oz.

[10] [11] [12] [13] Including (assumed) cost of tea and condiments: [10] 1/0¾d.; [11] 11d.; [12] 1/1½d.; [13] 6¾d.

great help to a housewife who could afford little meat and had to replace it partly by dried legumes.[1]

Errors of judgement committed by the purchasing housewife could, of course, easily play havoc with the pattern of the ' simple ' diet. But this does not affect our considerations: for the diet pattern outlined in Table V is not intended to show how a family could feed permanently on a diet costing 14 per cent less than the ' human needs ' diet, but rather to indicate the range of adaptation within which errors of judgement could be compensated without interfering seriously with a family's nutrition or their normal feeding habits. The figures in Table VI show that the nutritional intake from the ' simple ' diet is equal to that from the ' human needs ' diet in Table I, except as regards the intake of animal protein. No figures are given for vitamins in Table VI, since with identical quantities of the main sources of these nutrients —bread, margarine, and vegetables—in the two diets, they are practically identical with those in Table II. A more detailed comparison of the calorific intake and the intake of protein from the two diets is given in Table VII. The relatively high calorific intake from the meat-fish foods in the ' simple ' diet is due to the fact that 12 oz. of streaky bacon rashers in the ' human needs ' dietary are replaced in the ' simple ' dietary by 1½ lb. of fat bacon,

TABLE VI

Daily Nutritional Intake from ' Simple ' Diet for 5 Persons

	Total Diet per M.A.E.[1]	*Husband*[2]	*Wife*[2]	*Child*[2] 7—12 *Years*	*Child*[2] 5 *Years*
Calories	3,100	3,100	2,600	2,200	1,600
Protein, total, gm.	82	88	15	74	54
do., animal	*29*	*25*	*21*	*28*	*27*
Calcium, gm.	0.8	1.0	0.9	1.2	1.1
Iron, mgm.	13	18	16	13	8
Animal Protein as % of Total Protein Requirements ...	*42%*	*36%*	*34%*	*43%*	*52%*

[1] Male Adult Equivalent.
[2] Intake from shares shown in Table V.

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[1] The first controlled experiment of replacing meat by legumes appears to have been carried out about the year 600 B.C.: 'And the king appointed them a daily provision of the king's meat and of the wine which he drank; so nourishing them for three years that at the end thereof they might stand before the king. . . But Daniel proposed in his heart that he would not defile himself with the portion of the king's meat. . . . Then said Daniel to Melzar, whom the prince of the eunuchs had set over Daniel, Hananiah, Mishael, and Azariah, prove thy servants, I beseech thee, ten days and let them give us pulse to eat and water to drink. Then let our countenances be looked upon before thee, and the countenance of the children that eat of the portion of the king's meat; and as thou seest, deal with thy servants. So he consented to them in this matter and proved them ten days. And at the end of the ten days their countenances appeared fairer and fatter in flesh than all the children which did eat the portion of the king's meat. Thus Melzar took away the portion of their meat . . . and gave them pulse. . . . Now at the end of the days that the king had said he should bring them in, then the prince of the eunuchs brought them in before Nebuchadnezzar. And the king communed with them; and among them all was found none like Daniel, Hananiah, Mishael, and Azariah.'—Daniel I, 5–19.

TABLE VII

Relative Values of Nutrients from 'Simple' Diet and 'Human Needs' Diet

	'Simple' Diet			*'Human Needs' Diet*		
		Protein			*Protein*	
	Calories	*Vegetable*	*Animal*	*Calories*	*Vegetable*	*Animal*
		(*Total*	*100*)		(*Total*	*100*)
	%	%	%	%	%	%
Meat, Bacon, Sausage, Fish ...	10.4	—	14.1	10.8	—	20.5
All Milk (*excl. school milk*)	11.1	—	14.4	7.6	—	12.5
Fats	16.8	—	—	15.1	—	—
All Cereal Foods	42.1	44.8	—	42.9	43.9	—
Dried Legumes	4.6	12.4	—	3.1	8.1	—
Potatoes	6.6	5.3	—	6.6	5.1	—
Fresh Vegetables	1.3	2.1	—	1.3	2.1	—
Other Foods	5.0	—	3.4	10.5	1.0	3.4
Total	97.9	64.6	31.9	97.9	60.2	36.4
School Milk	2.1	—	3.5	2.1	—	3.4
Intake from All Foods ...	100.0	100.0		100.0	100.0	
Actual Intake per Family of 5 Persons per Week	*81,600*	*2,550 gm.*		*80,600*	*2,600 gm.*	

TABLE VIII

Relative Cost of Foods in Simple Diet for 5 Persons

	Total Cost	*Husband's Diet*	*Wife's Diet*	*Children's Diets*	
				7—12 Years	*5 Years*
	%	%	%	%	%
Meat, Bacon, Fish	18	25	18	17	13
All Milk	22[1]	7	12	27[2]	40[2]
Fats	9	14	12	7	6
All Cereal Foods[3]	20	22	23	19	15
Dried Legumes	5	6	6	5	3
Potatoes	5	6	6	5	3
Fresh Vegetables	8	7	8	8	7
Tea and Condiments	6	7	7	5	6
Other Foods[4]	7	6	8	7	7
Total Cost	100[1]	100	100	100[2]	100[2]
	s. d.	*s. d.*	*s. d.*	*s. d.*	*s d.*
Purchasing Value of Weekly Diet	*58 8¼*[5]	*14 0*	*11 9*	*11 8¼*[6, 7]	*9 6¾*[7]

[1] Including cost of 5 pints of free school milk, valued at 6½d. a pint.

[2] Including cost of 1⅔ pints of free school milk per child per week, valued at 6½d. a pint.

[3] Bread, flour, rolled oats, macaroni.

[4] Items (4), (5), (13), (14), in Table V.

[5] Including 2s. 8¼d., representing the ordinary purchasing value of 5 pints of milk, obtained free by 3 children at school.

[6] Cost per child.

[7] Including 10¾d., representing the purchasing value of 1⅔ points of free school milk.

yielding almost three times as many calories as the rashers. As a result of this, the figures for calories from this food group are approximately the same for the two diets, although the weights of the items comprised by it, differ substantially (7½ lb. for the 'simple' diet and 9¾ lb. for the 'human needs' diet). The strikingly high percentage figure for calories from milk in the 'simple' diet results from the inclusion of 6.4 tins of condensed milk, containing 2 lb. 10 oz. of sugar. This amount of sugar alone produces 4,500 calories.

The role of the different foods in the purchase of the individual shares[1] of the 'simple' diet is brought out in Table VIII. In computing the figures of cost for the purpose of this Table the milk obtained by the children at school is included at its full purchase price, *viz.*, 6½d. a pint. With this adjustment, two-fifths of the total cost of the youngest child's share and over one-quarter of that of the shares of the two older children would go to the buying of milk. Since, in fact, one-third of a pint of milk a day is supplied free to a child when attending school—*i.e.*, on about half the days of the year—the full cost of the 'simple' diet averaged over the whole year, would lie midway between 56s. and 58s. 8¼d.

Table IX gives a compressed picture of the consumption and cost patterns of the 'human needs' and the 'simple' diet, set out in detail in Tables I and V. From this comparison it becomes evident that only very few of the food groups of the 'human needs' dietary could offer a field for relatively substantial economies. The plainer a diet the more essential are the 'filling' foods—not only in theory but also in practice ; the last thing that any sensible housewife would do would be to make her family feel that they were going hungry. Hence the important place of cereal foods in any low-cost diet. Apart from this food group only three other groups—meat foods (including fish), milk, and 'other foods' absorbed each a large proportion of the total cost of the 'human needs' diet; the meat foods alone took up over one-quarter of it. The only alternative to a considerable yet not unreasonable reduction in the consumption of meat foods would be a disproportionate curtailing of the consumption of milk, from 18 pints per week to 7½ pints, if the same amount of saving—5s. 9½d.—were to be effected. Of course, a housewife who could spend the full 'human needs' outlay of 65s. 3d., but whose effective outlay, through errors of judgement, was reduced to 56s., would have bought *something* with the difference, thus presumably improving, at least in the eyes of her family, the quality of one or several of the food groups.

6. NUTRITION AND INCOME

It is of some interest to consider the cost figures of these inexpensive diets in relation to certain income patterns. The most recent published figures of average earnings of workers in manufacturing and certain other industries refer to April 1953.[2] For the male adult worker these earnings amounted to 185s. 11d. per week. On the assumption that the trend of the rise in earnings in 1952 about continued in 1953, we may assume an increase from the spring to the autumn of 1953 of between 3 and 5 per cent—say, 4 per

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[1] As shown in Table V.

[2] *Ministry of Labour Gazette*, September 1953.

TABLE IX

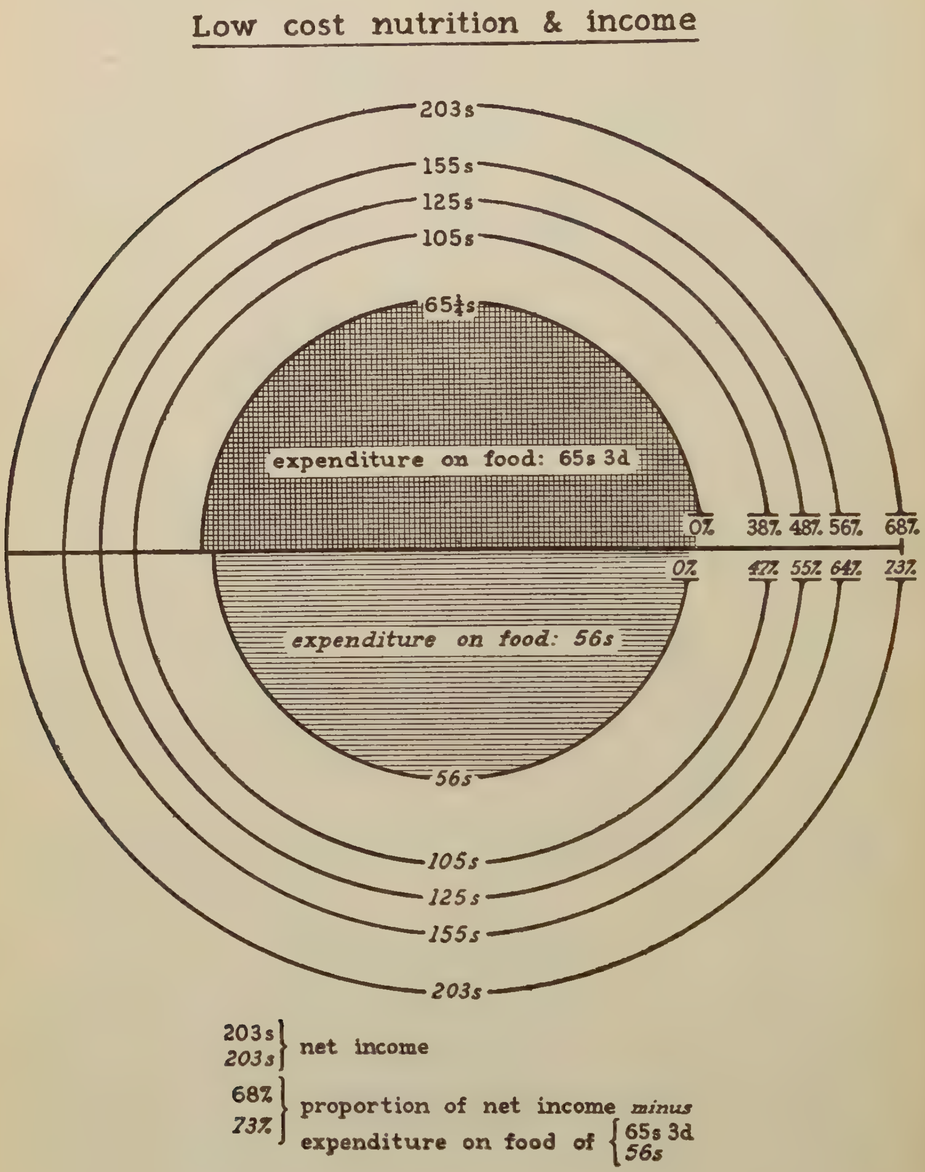
Patterns of Consumption and Cost of Two Low Cost Diets

	'Simple' Diet (Table V)				*'Human Needs' Diet (Table I)*			
	Quantity	*Cost*			*Quantity*	*Cost*		
		s.	d.	%		s.	d.	%
Meat, Bacon, Sausage, Fish	7 lb 8 oz.	10	7½	19.0	9 lb 12 oz.	16	4	25.9
All Milk (*excl. school milk*)	19 pints	9	11	17.7	18 pints	9	9	15.4
Fats	3 lb 11 oz.	5	6	9.8	3 lb 5 oz.	5	0	7.9
All Cereal Foods[1]	21 lb	11	7¾	20.8	21 lb 4 oz.	12	1	19.1
Dried Legumes	3 lb	3	0	5.4	2 lb	1	11½	3.2
Potatoes	21 lb	3	1½	5.6	21 lb	3	1½	5.0
Fresh Vegetables	14 lb	4	3¼	7.6	14 lb	4	3¼	6.8
Tea and Condiments...	...	3	8	6.5	...	3	6	5.6
Other Foods	...	4	3	7.6	...	6	11¾[2]	11.1
Cost of Diet as Purchased		56	0	100.0		63	0[2]	100.0

[1] Bread in terms of flour, in proposition of 10 : 7.

[2] Excluding 2s. 3d. for 'extras'.

cent. This gives for the autumn of 1953 a figure of weekly earnings of round 193s. Deducting from this 6s. for social insurances and trade union contributions and adding 16s. family allowances, we arrive at an average net income



for a family with three dependent children, of 203s. per week.[1] It is unlikely that a family in that income range would have to resort to a ' human needs ' nutrition, costing, for five people, only 65s. 3d., or 32 per cent of the total income. The question, however, at what income level a ' human needs ' diet *must* be adopted, cannot be answered, since, obviously, the proportion that can be applied to the purchase of food depends much on a family's other commitments, in particular on the share of the income absorbed by rent. On the other hand, it would seem that the full ' human needs ' diet would be within the reach even of a family reduced to the National Assistance level, since the subsistence needs of a family with three children of school age are assessed by the National Assistance Board at 102s. a week, exclusive of rent.[2]

In the Diagram above we have pictured the expenditure on both the ' human needs ' diet and the ' simple ' diet as proportions of an income range with an upper limit of 203s. The area of each full semi-circle represents total income and the shaded areas the cost, respectively, of the ' human needs ' and the ' simple ' diet. The percentage figures indicate the proportions that remain of incomes of different magnitudes after deducting the cost of the one or the other diet. For the sake of visual clarity only a few figures are given in the Diagram; but it is a simple matter to interpolate others. The percentage markings, of course, progress inversely on a logarithmic scale, falling from unity—when income equals food expenditure (at 0 per cent)—towards zero —when income grows so large that in relation to it food expenditure becomes infinitesimal.

T. SCHULZ.

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[1] A married earner with 3 dependent children who has a gross income p.a. of £543 8s. (£501 16s. earnings, £42 12s. family allowances) pays no income tax.

[2] *I.e.*, 59s. for husband and wife, 16s. for a child aged between 11 and 16 years, and 13s. 6d. for each child aged between 5 and 11 years. The assessment of needs of 102s. per week would be inclusive of 16s. family allowances.

RELATIVE REAL WAGES IN SWEDISH AGRICULTURE AND INDUSTRY, 1930–1950[1]

PART I

The growing interest in recent years in the relative income position of primary, secondary and tertiary producers has not yet produced much evidence to compare the real values (ignoring philosophical problems) of their money incomes. Only two relevant studies have been published.[2] One relates to a country with large distances, the other to one with a freakishly small proportion of its population in agriculture, comparative congestion of population and an extremely high degree of urbanisation. The results of neither study can, therefore, be regarded as widely representative.

Swedish experience provides a third case and has additional interest, partly because geographically, in economic structure and in extent of urbanisation it is typical of certain other countries, and partly because analysis is possible to allow for the possible shift in opportunity cost of acquiring self-supplies and payments-in-kind by farm employees, by alternative valuations based on rural retail prices or farm-gate prices.[3] Several Swedish studies have been made of some of the problems involved and reliable statistics exist for more to be completed. This paper summarises some available results and adds another.

The assessment of the compensation in money income necessary to maintain the same real income when a worker transfers from one occupation to another is clear in principle, although very difficult in practice. The problem is to decide by how much the money income of a worker moving from one occupation to another would have to vary so that his real income (excluding non-monetary considerations) would be the same in each situation. Difference in prices of identical commodities between the situations constitute no theoretical difficulty. The trouble arises because in the two situations commodities are consumed in different proportions. For this there are two reasons (ignoring differences in tastes). Firstly, prices relative to each other may, and usually will, be different in each case. In addition, differences in consumption patterns will arise because of differences in the level of real income enjoyed by the worker before and after the transfer. In terms of indifference curve analysis his new budget can differ from his old one because of substitution or income effects, or because of both. The essence of the present procedure is to eliminate the influence of income effects, and to measure only that of substitution effects. In other words, the quaesitum is the budget which in the new situation at the new situation's prices will leave the worker no better or worse off than he was in the old situation at the prices there ruling : this is the budget which will leave him on the same indifference curve. The relationship between the cost of this new budget—called hereafter the compensating budget—and the cost of the old budget gives the cost of living difference associated with the two occupations.

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[1] As part of an intensive study of relative incomes earned in agriculture and industry in various countries, in some cases going as far back as 1860, carried out by various members of the Agricultural Economics Research Institute, the author has made estimates of cost-of-living differences between Swedish agricultural and industrial workers from 1870 onwards. This article summarises the most interesting (and statistically reliable) part of the estimates and places them in a wider context.

[2] Nathan Koffsky, *Farm and Urban Purchasing Power* in *Studies in Income and Wealth*, Volume XI, National Bureau of Economic Research, 1949, and J. R. Bellerby, *United Kingdom : Comparison of Urban and Rural Retail Prices*, J.R.S.S. Vol. CXVI, Part 1, 1953.

[3] In Swedish wage statistics, payments-in-kind are valued at farm-gate prices (the prices at which the produce could be sold to middle men buying from farm producers for sale in normal distributive channels).

However, the compensating budget cannot easily be identified. At any time, the only budgets available will be those consumed by one set of workers in one situation and those consumed by others in another. Ignoring objections to the practice of making interpersonal comparisons of utility, these budgets will most probably not lie on the same indifference curve for the reason already indicated; that is, because of the influence of income effects. In the dynamic economy with which we are now dealing, the impetus of change of labour from one occupation to another will be differences in real income. Thus budgets obtained from workers in two different situations are likely to lie on different curves.

Although a compensating budget cannot be measured absolutely it can be defined in relation to other (existing) budgets. Consider two situations A and I, and use the normal notation for prices (P) and commodities (Q). The problem is to find the budget Q^1_I which equals in real terms the budget Q_A, so that the ratio $\frac{P_I Q^1_I}{P_A Q_A}$ can be obtained to measure the change in money income necessary when the worker moves from A to I so that he is no better off than before. This ratio is not greater than the ratio $\frac{P_I Q_A}{P_A Q_A}$, and will usually be less, because $P_I Q_A$ will be at least equal to, and more usually greater than $P_I Q^I_I$ as a result of substitution influences as prices relative to each other change from situation A to situation I. Thus is derived the upper limit of the difference of the cost of living between situations A and I. When a person moves from A to I his money income will not need to change by more than the ratio $\frac{P_I Q_A}{P_A Q_A}$, so as to leave him with the same real income as before.

Similarly, *another* measure can be derived of the cost of living difference between the situations and the lower limit set to this measure. This measure is $\frac{P_I Q_I}{P_A Q^1_A}$, and will be greater than the limit $\frac{P_I Q_I}{P_A Q_I}$,

If Q^1_A is equivalent to Q^1_I in real terms, then the two limits can be used together to provide the lower and the upper limits of the same measure of the cost of living difference, so that the actual difference in the cost of living for workers enjoying the same real income in the two situations can be delimited accurately. But this equality is unlikely by definition.

In practice it might be possible to choose budgets Q_A and Q_I that are virtually equivalent. This obviously introduces an element of circularity into the argument, which, however, does not invalidate the results. Thus, supposing the average level of real income of workers in situation I is clearly greater than the average level of real income of workers in situation A, it might be possible to approach equality in the cost of living comparison by choosing budgets relating to relatively lowly paid workers in situation I and budgets relating to relatively well-to-do workers in situation A. But there is no way of indicating whether this equality is achieved,

Taking situation A as agriculture and situation I as industry, the foregoing discussion provides the following elements in the technique of making a comparison of the costs of living for workers engaged in each.

(1) An agricultural budget valued at prices confronting industrial workers expressed as a ratio of its value at prices confronting agricultural workers gives the upper limit of the compensating variation of money income necessary, when a worker transfers from agriculture to industry, to maintain the same level of real income.[1]

(2) An industrial budget valued at industrial prices as a ratio of its value at agricultural prices gives the lower limit of *another* measure of the compensating variation.[2]

(3) Workers in each occupation will, on the average be earning a different real income, so that available budgets may give measures of the compensating variations at different levels of real income. Industrial workers will usually enjoy a greater real income than agricultural workers. As far as possible this discrepancy should be eliminated by choice of budgets.

Further, budgets used for a comparison should be chosen to be as representative as nearly as possible of real income levels at the date to which the comparison relates.

(4) In the case of Sweden, a special precaution is necessary. The price data used must reflect the prices faced on the average by all industrial workers and by all agricultural workers. For example, it is not satisfactory to use industrial prices drawn solely from the cities, or drawn predominantly from the larger cities. An account must be taken of the geographical distribution of the labour force.[3]

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[1] For brevity, 'prices confronting industrial workers' becomes 'industrial prices' hereafter. Similarly the term 'agricultural prices' is used.

[2] Separate budgets should, in fact, be used for industrial workers living in different locations, for exactly the same reasons as it is necessary to distinguish between agricultural and industrial budgets. Particularly, separate budgets ought to be distinguished for industrial workers in rural areas and for those in towns. The inability to do this has probably not introduced much error into any of the results given later.

[3] A large part of the industrial labour force is found in rural areas and small towns. See Appendix B.

II AVAILABLE ESTIMATES

A. Professor Erik Lindahl and Dr. Lars Lemne have made estimates for 1934 and 1941 [1] The technique follows explicitly the method described above. Budgets obtained in 1933–4 have been valued at three sets of prices; farm-gate prices (rural retail prices, except that self-supplies or payments in-kind of food and fuel are valued at farm-gate prices), prices confronting industrial workers living in rural areas (rural retail prices) and prices confronting industrial workers in urban areas (urban retail prices).[2] Three budgets are distinguished for industrial workers for different levels of real income : for farm labourers one budget is used. For one budget for each group comparisons are made including the effects of taxation; all budgets are compared excluding allowance for taxation. The main results of the study are shown in Table I.

B. The work of Dr. Lemne suggests a further comparison for 1941.[3] In order to measure regional differences in the cost of living the Swedish Social Board has, since before the first World War, made attempts to measure the cost of purchasing a standard budget in various localities, and localities have been grouped on the basis of the differences in cost found.[4] Using the cost data and information on the distribution of the industrial populations in Table 2, the national average cost of purchasing the budget using the weights suggested by the geographical distribution of the industrial labour force is found as 106.8 per cent. of the average cost obtained by using the weights suggested by the geographical distribution of the agricultural labour force.

This comparison is equivalent to measuring the lower limit of the compensating variation, assuming that the level of real income of the agricultural workers concerned is extremely high. This is evident by the high level of money income (4350 Kr.) postulated by the budget.[5]

III. OWN ESTIMATE : 1930–44

The basis of the analysis is a division of Sweden into six types of localities and of expenditure into seven groups of items. At any particular date the cost of each set of items is estimated for each locality group, and, by weighting the results by statistics of the geographical distributions of agricultural and

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[1] *Jordbruksbefolkningens levnadskostnader*, a special report for the 1942 Committee on Agriculture, published as an official publication in 1944 (S.O.U. 1944 : 1).

[2] These estimates are, in principle, defective on two counts although neither is likely to be serious in practice.

(*a*) The price statistics for rural and urban areas are averages and it is not clear that these are obtained by weighting returns from individual districts according to their importance in terms of population. Since industrial workers in rural areas live in the relatively more costly regions and agricultural workers in the less costly, the real cost of living difference may be understated.

(*b*) The 1934 budget is also used for 1941. Since increasing real income means an increase in the value share in expenditure of urban ' exports ' and so causes price relatives to move to the disadvantage of agriculture, the recorded fall from 1934 to 1941 in the cost of living difference will be understated.

[3] *Löner och levnadskosternader i sverige*, an unpublished study made available to the writer.

[4] The procedure is called ' dyortsgruppering '.

[5] See n. 1., p. 444.

TABLE I

	Value of Budget in 1934, taxes excluded, at rural retail prices Kr.	*Percentage Excess of Value of Budget at Urban Retail Prices over Value at*								*Percentage Excess of Value of Budget at Rural Retail Prices over Value at Farm-gate Prices*			
		Farm-gate Prices				*Rural Retail Prices*							
		Taxes Included		*Taxes Excluded*		*Taxes Included*		*Taxes Excluded*		*Taxes Included*		*Taxes Excluded*	
		1934	*1941*	*1934*	*1941*	*1934*	*1941*	*1934*	*1941*	*1934*	*1941*	*1934*	*1941*
Farm Labourers' Budget ...	1928	22.1	14.2	24.6	17.5	13.5	7.1	15.5	9.5	7.5	6.6	7.8	7.3
Industrial Workers' Budget (1)	2276			21.1	14.7			12.5	9.3			7.7	4.9
(2)	2786	14.9	12.9	19.8	15.7	9.4	8.1	13.5	10.3	5.0	4.5	5.6	4.9
(3)	3231			19.0	14.4			12.5	9.3			5.8	4.8

Source : Table 16 of report.

TABLE 2

Data for Estimating Cost of Living Difference in 1941, *using ' Dyortsgrupper ' Statistics*

Cost of Living Group	*Relative Cost of Budget (Stockholm = 1000)*	*Percentage Distribution of Workers in 1940*	
		Agricultural	*Industrial*
A	786	61	22
B	814	19	16
C	842	12	12
D	869	5	9
E	885	2	10
F	902	1	13
G	936		7
H	949		2
I	974		9

Sources : Cost of budget statistics—*Betänkande angaende dyortsgrupperingen*, p. 231. Population statistics—Lemne's unpublished report (Based on population census.)

NOTE. Groups A and B correspond *approximately* to Agricultural and Mixed Communes, C and D to Industrial Communes, E to Municipalities, F to Cities with less than 20,000 population, G and H to Cities with between 20,000 and 100,000 population, and I to cities with over 100,000 population. (See below, Part III.)

industrial populations,[1] coefficients have been derived showing the cost of each budget item valued at industrial prices as a ratio of the cost at agricultural prices. These coefficients have then been combined according to estimated expenditure patterns for agricultural and industrial workers at the date concerned on two bases, the first a retail price valuation and the second a valuation based partly on farm-gate prices. For each date, therefore, four measures are derived of the ratio of all expenditure valued at industrial prices to the same expenditure valued at agricultural prices.

In more detail the six locality-types are (*a*) Agricultural and Mixed Communes, (*b*) Industrial Communes, (*c*) Municipalities, (*d*) Cities with less than 20,000 population, (*e*) Cities with population between 20,000 and 100,000, and (*f*) Cities with populations over 100,000. The seven budget items distinguished are Food, Housing, Fuel, Light, Clothing, Local Taxes, and Miscellaneous Expenditure. Within each group, except fuel, fixed budgets are used. Thus, within the groups, the expenditure patterns of agricultural and industrial workers are assumed the same, the necessary information being usually taken from family budgets relating to industrial workers.[2]

The result of the combination of the coefficients into one or other average will approximate to one of the limits to the cost of living difference defined in the theoretical discussion. Using weights derived from agricultural budgets will give the upper limit of the compensating variation at one level of real income. Industrial budget weights will provide the lower limit of the compensating variation at another level of real income. These levels of real income will not usually coincide although budgets have been chosen, wherever possible, relating to levels of money income which will bring the levels of real income towards equality.

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[1] For the method of estimating these distributions see Appendix B.

[2] In practice, the theoretical imperfection is not important. Evidence given later (Appendix A), shows that in the case of food no serious errors arise through ignoring this part of the substitution effect.

TABLE 3

Cost of Main Items of Budget Expenditure in 1930, 1941 and 1944 by Localities and for Agricultural and Industrial Workers
(Cost in Agricultural and Mixed Communes = 100.0)

	Food			*Housing*		*Light*		*Fuel*			*Clothing*		*Taxes*			*Misc. Items.*	
	1930	*1941*	*1944*	*1930*	*1941–4*	*1930*	*1941–4*	*1930*	*1941*	*1944*	*1930–41*	*1944*	*1930*	*1941*	*1944*	*1930–41*	*1944*
Agricultural and Mixed Communes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Industrial Communes	101.6	101.6	100.4	104.3	104.3	100.0	100.0	108.6	108.6	113.9	100.4	100.2	97.6	97.6	99.1	100.5	100.7
Municipalities	102.4	102.4	100.8	116.8	116.8	100.0	100.0	122.9	122.9	134.9	99.8	100.4	105.0	106.8	109.7	100.4	100.4
Towns under 20,000 population	103.0	103.9	101.5	131.6	136.0	93.3	93.7	130.8	131.9	142.0	100.2	100.7	104.7	106.3	115.9	100.7	100.8
Towns 20,000—100,000 population	104.6	104.2	100.8	162.4	160.4	91.0	95.9	136.2	136.7	150.0	103.2	101.3	107.3	110.0	121.7	101.1	101.4
Towns over 100,000 population	108.2	105.6	102.4	227.0	214.1	91.6	83.3	170.1	132.9	135.7	100.8	101.1	107.5	110.2	110.4	103.2	103.1
Value of Index for all Agricultural Workers	100.3	100.4	100.1	101.3	101.3	99.9	99.9	102.1	102.1	103.3	100.1	100.0	99.7	99.8	100.2	100.1	100.1
Industrial Workers	102.9	102.7	100.9	134.8	136.3	96.8	95.4	123.4	118.3	123.7		100.5	101.9	103.3	106.5		101.1
1930											100.6					101.0	
1941											100.7					101.0	
Cost to Industrial Workers as Percentage of Cost to Agricultural Workers	102.6	102.3	100.8	133.1	134.6	96.9	95.5	120.9	115.9	119.7		100.5	102.2	103.5	106.3		101.0
1930											100.5					100.9	
1941											100.6					100.9	
Ditto, allowing for self-supplies, etc., to farm workers at farm-gate prices	121.1	113.8	112.1					165.6	158.8	164.0							

For 1941 and 1944 no new calculations of price spreads have been necessary. Available statistics are reproduced in Table 3.[1] The calculations for 1930 are shown in Appendix A, together with alternative price estimates for self-supplies and payments-in-kind for farm labourers at all dates.

Using the population weight suggested in Appendix B, agricultural and industrial average coefficients of the price indices have been obtained, as given in Table 3. Combination of these coefficients give the following results.[2]

TABLE 4

Percentage Excess of Cost of Living of Industrial Workers over Cost of Living of Agricultural Workers

	1930	*1941*	*1944*
Using only retail prices for valuation :			
Agricultural Budget	5.6	5.2	4.6
Industrial Budget	6.5	6.0	5.7
Using farm-gate prices for valuation of self-supplies, etc.			
Agricultural Budget	17.0	12.8	12.1
Industrial Budget	16.6	13.9	13.6

IV. FINAL ESTIMATE 1930–44

In reconciling the foregoing estimates the results from the Lemne-Lindahl calculations (Part II (A)) have been taken as being, most likely, slightly too low, and those of Part III as being, perhaps, slightly too high. There are two reasons why the former may be too low.

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[1] They are taken from *Betänkande angaende dyortsgrupperingen avgivet av 1943 ars dyortskommitte* (S.O.U. 1945:32. Chapter 5). The patterns of expenditure used to measure the cost variations by districts are based on a hypothetical budget which postulates a money income of 4,570 kr. This use of a budget referring to a level of real income very much higher than any attainable by agricultural workers will underestimate the urban-rural price spreads confronting industrial workers on the same level of real income as agricultural workers recorded, since urban industrial workers on low incomes would ' import ' a greater proportion of their expenditure from rural areas than would those with higher incomes.

[2] The weights used were derived from the following budgets, chosen from various alternatives, to reflect satisfactory levels of real income. Budgets A and C being used for 1930 and B and D for 1941 and 1944.

	Per Cent of Total Expenditure			
	Agricultural Budgets		*Industrial Budgets*	
Date of Expenditure	*A* *1933–4*	*B* *1934*	*C* *1933–4*	*D* *1941*
Food	51.0	52.8	45.3	46.8
Housing	9.1	9.3	12.8	10.4
Light	1.0	1.0	1.0	1.0
Fuel	4.5	3.5	3.9	5.9
Clothing	12.6	12.3	13.3	11.6
Taxes	2.9	Not included	Not included	5.1
Miscellaneous	18.9	21.1	23.7	19.2
Average Expenditure of Workers covered by Enquiry (kr.) ...	1,688	1,928	2,560	3,100

Sources : Budget A, *Statistisk arsbok för sverige*, 1948, p. 221. Budgets B and C, *Jordbruketsbefolkningens levnadskostnader*, p. 59. Budget D, *Betänkande angaende levnadskostnads index* (S.O.U. 1943:8), p. 73.

NOTES. Budget B has self-supplies valued at rural retail prices. No agricultural budget relating to a date later than 1934 is available. Budget B reflects a level of real income enjoyed by few agricultural workers in 1934. By 1941 it would be much more typical.

Firstly, their treatment of local taxation shows the level of taxation as lower in urban than in rural areas. This seems an untenable result, which is a view supported by the statistics of *Betänkande angaende dyortsgrupperingen*. It is true that the higher taxation in urban areas is partly the cause of higher real incomes enjoyed. But, the increase in taxation arising from transfer from work in agriculture to work in industry in urban areas is unavoidable, and for that reason can safely be regarded as a cost-of-living difference. Similarly the Lindahl-Lemne assessment of complete equality of prices in urban and rural areas for miscellaneous expenditure is unsupportedly at odds with the preferred estimate from *Betänkande angaende dyortsgrupperingen*.

Secondly, their method of simple distinction between urban and rural areas, makes insufficient allowance for the detailed geographical locations of the two labour forces. The retail prices facing agricultural workers in rural areas will be less than, not equal to, those confronting industrial workers in rural areas, for the reason mentioned earlier.[1] The urban retail prices are probably too low, because from the sources used they appear to be unweighted means based on quotations from individual towns. Thus, the returns from the larger, less numerous, towns will not be insufficiently represented in terms of industrial workers living in them.

The slight contrary bias of the calculation of Part III is probably due to the overweighting of the larger towns in the estimate of the distribution of the urban industrial population.[2] Further, there is the imperfect allowance for the substitution effect, since fixed budgets are used *within* each main item of expenditure. However, an effort has been made to limit this error in calculating the co-efficients for food and fuel (where it could be most serious), so that any resulting over-estimate of the cost-of-living difference is small.

The various estimates for assessing the limits of the compensating variation, using either only retail price valuations or farm-gate price valuations are given in Table 4. Budget comparisons with and without taxes are made because in the Lemne-Lindahl study the industrial budget which clearly comes closest in real terms to the agricultural workers' budget is valued only with taxes excluded. The inclusion of the comparisons without taxation consequently permits a more exact fixing of the compensating variations.

The procedure adopted has been to assess first the 1941 limits by using all estimates for that date, except that obtained in Part III by using the industrial budget (this clearly gives an upper limit for a standard of real income much higher than that enjoyed by agricultural workers). Then all available series have been used to carry back the estimate to 1930 and 1934, and forward to 1944, the rate of change recorded by the budget excluded for 1941 being considered more reliable than its absolute values. The results are given in Table 4.[3]

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[1] See n. 2, p. 440. [2] See Appendix B.

[3] Although a mean value is given for the limits it is, of course, recognised that in principle there is not usually one unique value for the cost-of-living difference.

TABLE 4

Summary Estimates, Cost-of-Living Differences, with Final Results. 1930–1944.

			Percentage Excess of Cost of Budgets at Industrial Prices over Cost at Agricultural Prices							
			Retail Price Valuations Only				*Farm-Gate Price Valuations for Food and Fuel in Farm Labourers' Budgets*			
			1930	*1934*	*1941*	*1944*	*1930*	*1934*	*1941*	*1944*
Own Estimate	*Including Taxes*	Upper Limit	5.6		5.2	4.6	17.0		12.8	12.1
		Lower Limit	6.5		6.0	5.7	16.6		13.9	13.6
	Without Taxes	Upper Limit	5.7		5.2		17.1		12.8	
		Lower Limit	6.5		6.1		16.6		14.0	
Lemne-Lindahl Estimates	*Including Taxes*	Upper Limit		7.7	3.3			13.8	10.1	
		Lower Limit		4.0	3.7			9.3	9.0	
	Without Taxes	Upper Limit		6.7	4.4			15.0	12.0	
		Lower Limit (Budget 2)		5.8	4.7			11.7	9.9	
		Lower Limit (Budget 1)		5.4	4.3			13.5	9.4	
Lemne Estimate	*Without Taxes*	Lower Limit			6.8					
	Suggested Limits of Cost-of-Living Differences	Upper Limit	5.5	7.4	5.0	4.4	17.0	15.5	12.0	11.7
		Lower Limit	5.5	6.0	4.9	4.4	(12.0 to 14.5)	13.5	9.4	9.4
		Mean	5.5	6.7	5.0	4.4	15.0	15.0	10.7	10.5

It is clear from Table 4 that although conclusions which are broadly correct can be drawn, exact measurement of the cost-of-living differences can not be made. The worthwhile conclusions seem to be as follows.

(1) With retail price valuations only, the increase in money income necessary to leave a worker with the same real income on moving from agriculture to industry would be of the order of 6 per cent. in the early 1930s, falling to just over 4 per cent. by the middle of the 1940s.

(2) If a worker ignored the effort necessary to acquire self-supplies the adjustment would be around 15 per cent. at the beginning of the period and 10 per cent at the end; in brief, two and a half times the compensation necessary on the assumption of retail price valuations.

(3) Every effort has been made to discount the effect of quality differences in housing normally available in urban and rural districts. The problem of housing always jeopardises the accuracy of urban-rural cost-of-living comparisons. If errors have arisen through the insufficient exclusion of quality differences all of the foregoing estimates would be 3 per cent too high.[1]

(4) In the early 1930's the gap between money wages in agriculture and industry was extraordinarily wide when compared with the situation of the war years and since. Even the most sanguine allowance for urban-rural cost-of-living differences does not significantly change the position. This is shown by the following comparison, based on wage statistics given in the yearly publication *Lönestatistik arsbok för sverige*.

	1930	*1934*	*1941*	*1944*	*1949*
Annual Industrial Earnings, adult males (kr.)	2,865	2,715	3,615	4,260	6,077
Annual Agricultural Earnings, adult males (kr)[2]	1,270	1,171	1,986	2,573	4,450
Agricultural Earnings x Maximum 'Compensating Variation' (kr.) ...	1,460	1,347	2,185	2,830	?
Agricultural Earnings x Probable 'Compensating Variation' (kr.)	1,346	1,241	2,065	2,676	?

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[1] This is the extreme limit, assuming that comparable housing costs are the same in rural and urban areas. For various reasons (*e.g.* lower building wage rates in rural areas, the extent to which timber is used in Swedish housing) this is a doubtful assumption for the period considered. The paradoxical results of Table 4, where some 'lower' limits are in fact higher than their corresponding upper limits arises because the housing expenditure item in the budgets used do not eliminate the effects of quality differences.

[2] This series starts in 1936. It has been carried back by an index number based on statistics which are more limited in scope than those compiled from 1936 onwards, yet still reliable for showing the extent of change.

APPENDIX A

Price Spreads in 1930

Food, Light and Fuel

The source of the prices used to value these budget items in the different localities is *Detaljpriser och indexberäkningar aren* 1913–30 (Swedish official publication, 1933). Thirty-eight localities are covered in the analysis, as below.

	Population Size				
	Under 5,000	5,000–20,000	20,000–40,000	40,000–100,000	Over 100,000
1930	4	18	11	2	3

(A few towns from the northern Swedish counties have been excluded, since these counties are not important from the viewpoint of the hired agricultural labour market). Urban areas with less than 5,000 population have been taken as being municipalities—a reasonable assumption as far as price levels is concerned. Towns between 20,000 and 100,000 population have been distinguished into two groups to ensure more accurate weighting according to the geographical distribution of the population. These are combined in the final presentation of results.

In the fuller unpublished study on which this summary is based, two possible defects in the statistics were examined, but considered unimportant. These were (1) the small size of the sample, especially for municipalities, and (2) geographical unrepresentativeness of the sample.

(1) *Food*

Representative food items, according to Budget C. of footnote 1,p. 442, are covered. By value they are 84 per cent of the food budget. Since no information is available for rural areas, the price spreads between these and municipalities in 1941 have been assessed for 1930. This clearly is a conservative assumption. When an agricultural budget (Budget B of footnote 1, p. 442) is used, the index is not changed substantially, as shown above. This aspect of the substitution problem can be ignored.

Population (Under 5,000=100)

Commodity	*5,000–20,000*	*20,000–40,000*	*40,000 100,000*	*100,000 and over*	*Weight for All Food Index*	
					Budget C	Budget B
Fresh Milk ...	101.0	101.5	96.5	105.4	19	23
Butter	98.5	98.8	97.3	96.1	9	7
Cheese	104.7	102.7	108.5	109.2	3	3
Margarine ...	100.1	100.1	100.5	100.9	5	7
Fresh eggs ...	98.7	100.0	98.6	105.7	5	3
Potatoes ...	106.7	109.1	105.3	110.1	4	5
Wheat Flour ...	100.2	99.5	98.8	97.0	5	8
Rye Flour... ...	101.2	101.2	100.9	98.5	3	5
Wheat Bread ...	96.0	105.0	119.8	112.8	7	2
Rye Bread ...	102.3	100.9	102.0	101.7	2	2
Beef and veal ...	100.0	104.3	106.7	113.9	10	7
Pork and Bacon	103.8	105.4	100.8	116.6	11	13
Fish	103.7	111.1	108.2	124.5	3	3
Coffee	100.6	100.7	102.3	98.8	6	7
Sugar	98.0	98.2	96.7	93.0	8	8
All Food (Weights from Industrial Budget)... ...	100.6	102.3	101.8	105.7	100	103
All Food (Weights from Agricultural Budget)... ...	101.1	102.1	100.6	105.0		

(2) *Light*

Only paraffin prices are available for urban areas. The cost in rural areas has been taken as the same as in the municipalities. As late as March 1936, only some 53 per cent of houses in rural areas had electricity. (*Särskilda folkräkningen* 1935–6, Vol. III, p. 99). For farm workers the percentage would be, presumably, much less. The use of paraffin prices is, therefore, justified, at least in assessing the upper limit of the cost-of-living difference.

(3) *Fuel*

The fuels considered are birch and pine woods, anthracite and coke. Gas is omitted. (In 1942, some 13 per cent of total expenditure on heating, assuming all gas was used for heating purposes, was spent on gas. Source : *Betänkande angaende levnadskostnadsindex*, 1943, p. 44). The price statistics given below show the need to make some allowance, albeit partly arbitrary, for the substitution effect. Weighting the price data according to average national consumption patterns will overstate the real cost-of-living differences.

Fuel Prices in 1930. (Prices in Towns Under 5000=100)

	Birch	*Pine and Fir*	*Anthracite*	*Coke*
5,000—20,000 population ...	105.5	109.2	100.5	97.8
20,000—40,000 population ...	108.1	111.8	99.5	91.6
40,000—100,000 population ...	118.8	146.3	99.0	93.9
Over 100,000 population ...	144.5	165.7	90.9	90.9

Details on the national consumption pattern in towns are available for 1913 (*Cost of Living in Sweden*, pp. 161–2). For 1920, a year in which agricultural labourers' real incomes were high, statistics are available showing the fuel consumption pattern for a small sample of agricultural labourers and small-scale farmers. (*Levnadskostnaderna pa landsbygden i sverige vid ar* 1920, p. 83. 372 workers are covered by this enquiry. The statistics used above refer to 225 workers, the others having been excluded since they obtained earnings higher than the average for agricultural wage earners at this date. Their inclusion would not influence the statistics appreciably.) These latter statistics may be taken to represent the fuel consumption pattern of all workers living in rural areas enjoying the same level of real income as agricultural workers, and the others to show the expenditure pattern of all workers again on the same level of real income as agricultural workers (in view of the dates this is probably roughly correct), in urban areas. In 1930 just under one quarter of urban industrial workers would live in towns with under 20,000 population. Using these fractions as weights, and carrying out the adjustment so that a reasonable relationship exists in the changes of percentage expenditure on anthracite between different localities, the following results are obtained, the last two lines being used to combine the price statistics for urban areas.

Estimated Distribution of Expenditure on Fuels by Localities for Agricultural Workers and Industrial workers Enjoying the same Level of Real Income

	Birch	*Pine and Fir*	*Anthracite*	*Coke*
		per cent		
Rural Areas	25	72	3	0
All Towns, of which	32	45	12	11
Towns under 20,000	36	49	8	7
Towns over 20,000	30	43	14	13

For the same reason as with food and light, the index of the cost of the fuel budget by urban districts has been extended to rural areas to assuming, again conservatively, the same spread of the index as in 1941 between them and municipalities.

Housing

An index for 1930 has been derived by interpolating between the 1941 index and estimates for 1924 based on *Hyresräkningen ar* 1924, Volume I. (Swedish official statistics, 1925).

The calculations for 1941 appear to cover all standards of housing significant for the budget which forms the basis of the cost-of-living calculations in that year, with adequate allowance for the effect of quality differences between districts. For earlier dates, the cost of renting two types of accommodation are examined. These are houses of one room plus kitchen, and those of two rooms plus kitchen, and the statistics for each have been given equal weighting. According to the Partial Census of Population of 1936, at that date 39 per cent of all dwellings in Sweden consisted of at most one room plus kitchen, and 29 per cent of two rooms plus kitchen. For rural areas, the figures were, respectively, 34 per cent and 29 per cent and for urban areas 46 per cent and 28 per cent (*Statistisk arsbok för sverige*, 1948, p. 229). For earlier dates these would clearly be a greater proportion of single roomed houses.

Considerable allowance for quality difference can be made when using the 1924 statistics, by excluding statistics for housing with central heating, since this service will tend to be found to a relatively greater extent in urban areas, especially in the more densely populated and will be associated with housing of better quality in other respects. It is not clear whether the statistics as used exclude other quality differences, but these are probably not important, in that their development has been mainly associated with the expansion in the rate of urban house construction since the later 1920's. It seems safe, therefore, to assume that quality differences do not play a significant part in influencing the range of the indices for 1924.

The 1924 statistics derive from a large scale enquiry relating to 220 localities including all important urban areas and some rural areas mostly adjacent to towns. (An estimate, not published here, shows that inclusion of these *unrepresentative* rural areas does not distort the results). The level of rents is distinguished for four groups of localities in the following Table. For the first three the statistics as given in the report have been used ; but for the group of towns with more than 100,000 population an average rent has been calculated by weighting the returns for each town according to their relative sizes. The necessity of obtaining a weighted average for this group arises from the wide disparity of both rents and size of towns in the group. The weights used are, Stockholm 76, Göteborg 44, and Malmö. The third group was broken down by using the rent estimates for 30 individual towns, covering 15 with populations under 20,000, 13 with populations between 20,000 and 40,000, and the 2 towns with populations between 40,000 and 100,000. (The reason for reducing the size of the sample slightly was to effect a comparison with results for the identical towns in 1913 for the purpose of the fuller enquiry into cost-of-living differences).

Cost of Renting Accommodation in 1924 by Size of Locality
(Rent in areas with less than 5,000 100.0)

	1 Room + Kitchen		*2 Rooms + Kitchen*		*Average for both types*	*Statistics*
	From Report	*Estimated*	*From Report*	*Estimated*	*From Report*	*Estimates*
5,000— 10,000	105.1		112.1		108.6	
10,000— 20,000	125.7	110.3	135.2	114.9	130.5	112.6
20,000— 40,000		131.3		142.8		137.0
40,000—100,000		142.3		156.2		149.2
100,000 and over	192.4		208.2		200.3	

The index has been regrouped, as required for comparison with 1941, according to the total urban population in 1924 in each group. The result is as follows.

Cost of Renting Accommodation in 1924 and 1941 in Urban Areas by Size of Locality
(Rent in municipalities = 100.0)

	1924	*1941*
Towns under 20,000	110.6	116.4
Towns 20,000—100,000	140.0	137.3
Towns over 100,000	200.3	183.3

Once again, no information is available for rural areas and the 1941 estimate has been used for 1930. This has probably caused some under-estimation of the spread of rents in 1930.

Clothing and Miscellaneous Expenditure

In default of other information the indices for 1941 have been used.

Local Taxes

The index for 1941 measures the locality variation in the amount of tax which would be paid by low grade state employees. From 1930 to 1941 local taxes rose more in towns than in rural areas. This is shown by Dr. Lemne (in his unpublished study mentioned earlier), who records a rise of local taxes in towns of 36 per cent between 1930 and 1941 relatively to the rise in rural areas. The estimate for 1930 has been obtained by deflating the 1941 index values for urban areas according to this change.

Food

Valuation of Self-Supplies at Farm-Gate Prices

From Jordbruksbefolkningens levnadskostnader (p. 42 and pp. 53–4), the following table is compiled.

Value of Agricultural Labourer's Food Budget

		A *At farm-gate or retail prices, as appropriate*	*B* *At rural retail prices*	*A as percentage of B*
Valued at 1934 prices	Receipts in kind ...	247.4		
	Purchases with cash	631.2		
	Total	878.6	1037.4	84.7
Valued at 1941 prices	Receipts in kind	479.0		
	Purchases with cash	1087.0		
	Total	1566.0	1742.0	89.9

The first percentage has been used for 1930 and the second for 1941 and 1944.

Fuel

In 1934 fuel expenditure (at farm-gate prices) was 61.6 per cent of total expenditure on fuel and light while in 1941 light and fuel were valued at 146 kr. when fuel was valued at farm-gate prices, and at 179 kr. when rural retail prices only were used. (*Jordbruksbefolkningens levnadskostnader*, p. 42 and p. 54). Applying the percentage to the first of the 1941 values, fuel in 1941 would cost 90 kr. at farm-gate prices and 123 kr. at rural retail prices. These figures suggest that the ability to obtain supplies at farm-gate prices would reduce the farm labourers' cost of purchasing fuel by 27 per cent in 1941, a deflating factor which has also been used for 1930.

APPENDIX B

LOCATION OF THE AGRICULTURAL AND INDUSTRIAL POPULATIONS

The starting point is the distribution of the total Swedish population in three periods, 1905–14, 1915–20 and 1921–30, as between the three types of rural commune (agricultural, mixed and industrial), towns excepting Stockholm, and Stockholm. (Source, *Population Movements and Industrialisation*, Institute for Social Sciences, University of Stockholm, p. 331). For 1910 and 1930 the percentage of rural populations dependent on agriculture for the three types of commune are given in D. S. Thomas' *Social and Economic Aspects of Swedish Population Movements* (p. 371) as follows : 1910, agricultural communes 72 per cent, mixed communes 54 per cent and industrial communes 30 per cent : 1930, 70 per cent, 44 per cent 24 per cent respectively. Interpolated estimates have been made of these percentages to apply to the total population figures just mentioned, to give the following result.

Location of Agricultural Population

	1905–14	*1915–20*	*1921–30*
		Per cent	
Agricultural Communes	58.9	56.1	56.6
Mixed Communes	22.4	23.6	22.9
Industrial Communes	17.2	18.4	18.4
Towns	1.3	1.7	1.9
Stockholm	0.2	0.2	0.2

In 1930, 58.4 per cent of the male industrial labour force lived in rural areas (Thomas, op. cit., p. 181). By using Census data relating to all industrial workers in 1930 and 1940, the figure for 1940 is estimated 52.3 per cent. The breakdown of this group between the three groups of rural communes has used much of the same material as was employed above. In 1930, in agricultural communes 13 per cent of the total population was dependent on industry, in mixed communes 24 per cent and in industrial communes 44 cent (*Population Movements*, p. 330). For 1910 estimates the 1930 estimates have been adjusted according to the variation in the proportions of the populations not dependent on agriculture between 1910 and 1930 to give, respectively for each type of commune, 12 per cent, 20 per cent and 40 per cent. Interpolated percentages for 1925 are 13, 23, and 43. Thus, the proportion of the total industrial labour force which lives in agricultural and mixed communes has been estimated as follows, 1910 44 per cent, 1925 41 per cent and 1930 49 per cent.

The distribution of the urban industrial labour force has been taken as corresponding to the distribution of the total urban population between towns of different size. (These statistics were derived from *Statistisk arsbok*, 1948 and Thomas, op. cit. p. 43). There is probably some over-assessment of the importance of the larger towns, since generally they contain a lower proportion of their population in secondary occupations and a greater proportion in tertiary activities than do the smaller. The error is clearly not great.

Estimates on similar lines to the foregoing have been made back to 1890. There is no need or space to show them here. One conclusion from the longer period analysis is, however, important. Between the years 1890 and 1930, the proportion of the total industrial labour force which lived in industrial communes was constant at 35 per cent. This percentage has been taken for 1940. Thus, for 1940 given the proportion of the total industrial labour force in urban areas, the proportion of it in agricultural and mixed communes was found as a remainder item. The following summarises the results of the analysis.

Final Estimates for 1930 and 1940 of Geographical Distribution of Male Agricultural and Industrial Labour Forces

	Per cent		
	Agriculture	*Industry*	
	1930–40	*1930*	*1940*
Agricultural and Mixed Communes	80	23	19
Industrial Communes	18	35	35
Municipalities	1	2½	2
Towns under 20,000 Population	1	11	12
Towns with 20—40,000 Population		8	7
Towns with 40—100,000 Population		2½	5
Towns under 100,000 Population		18	20

Erratum. BULLETIN, Vol. 15, No. 12. T. Schulz : A 'Human Needs' Diet. Page 434, Diagram. The percentage figure in the upper half of the diagram referring to possible non-food expenditure out of an income of 155s. should read 58 (and not 56).

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